

REMARKS

Applicants have added references to a co-pending Application No. 10/788,460 into the specification. No new matter has been added.

Should there be any other outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John E. Curtin at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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ATTACHMENT FOR SPECIFICATION AMENDMENTS

REPLACEMENT PARAGRAPHS (MARKED-UP VERSION)

[0001] Recently, research has been completed related to techniques which seek to provide “fairness” (i.e., a minimal allocated bandwidth) and quality of service (“QoS”) guarantees for wireless local area networks (WLANs). For example, co-pending U.S. Patent Application No. _____ 10/788,460 entitled “Methods and Devices for Providing a Relative Level of Fairness and QoS Guarantees to Wireless Local Area Networks” discloses techniques which divide a contention free period (“CFP”) into a plurality of slots. Thereafter, only non-interfering access points are allowed to transmit during one or more slots which have been allocated or assigned to each access point (“AP”). By only allowing non-interfering access points to transmit during an assigned or allocated slot, problems (e.g., hidden node and overlapping cell problems) associated with providing fairness and QoS guarantees are eliminated.

[0002] Co-pending U.S. Patent Application No. _____ 10/788,460 sets forth one criteria which may be used to determine the number of CFP slots to assign to an AP, that being, assigning slots to APs such that a lower bound of AP slot-to-user ratios is maximized. Based on this criteria, co-pending U.S. Patent Application No. _____ 10/788,460 ensures that every AP has at least one slot during which it is allowed to transmit. That said, co-pending U.S. Patent Application No. _____ 10/788,460 is not necessarily directed at determining how long an access point will be allowed to transmit during a CFP (i.e., how many transmission slots should be assigned to each access point) or when an access point will be allowed to transmit (i.e., during which slots, hereafter referred to sometimes as “slot sequence”).

[0024] In one embodiment of the present invention, $G = (V, E)$ is an interference graph, such as the one defined in co-pending U.S. Patent Application No. 10/788,460 the disclosure of which is incorporated herein by reference, where G is a unit disk graph. Initially, a so-called "coloring problem" can be formulated for G . Hereafter, the word "color" and slot may be used interchangeably. Those of ordinary skill in the art will recognize the two terms as being synonymous. The present invention assumes that each node (i.e., AP) $v \in V$ is associated with an integer requirement $r_v \geq 1$, which is the number of distinct colors required by node v . A coloring problem for G may be formulated as an assignment of a number of r_v distinct colors S_v to every node $v \in V$, such that no common color is assigned to the two end nodes of any edge $(u, v) \in E$, i.e., $S_u \cap S_v = \emptyset$ and the total number of colors used $|\bigcup_{v \in V} S_v|$ is minimized. Thereafter, a joint coloring and frequency assignment problem may be formulated for G . In addition to identifying a coloring scheme for a group of nodes of G , frequencies from a given set F also need to be assigned to the group of nodes of G . Each node v is assigned a single frequency $f_v \in F$ and $S_u \cap S_v = \emptyset$ for only those edges $(u, v) \in E$, such that $f_u = f_v$, in order to minimize the total number of colors used, $|\bigcup_{v \in V} S_v|$.